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NICKEL IN JULY 1997

Reported domestic nickel consumption in July, on a daily average basis, was slightly less than that of June, according to the U.S. Geological Survey. Daily usage by the stainless steel industry was 4% more than the June average of 123 metric tons (t). However, sales to plating companies were down significantly. Consumption of elemental nickel to make nickel-base corrosion resistant alloys also declined.

The United States imported 58,500 t of cathode, pellets, and briquets during the first half of 1997—about 3% less than the tonnage received in the first 6 months of 1996. The principal suppliers of cathode continued to be Canada, Russia, and Norway (in descending order). The United States exported ferronickel containing 4,010 t of nickel during the first half of 1997. Exports of stainless steel scrap contained an estimated 12,600 t of nickel, up from 9,940 t in the first half of 1996. Trade data for July will appear in a subsequent issue.

Goro Nickel Project

In mid-September, Inco Limited and the Bureau de Recherches Géologiques et Minières (BRGM) announced that they would build a pilot plant in New Caledonia to evaluate innovative hydrometallurgical technologies for extracting nickel from lateritic ores. These technologies were specifically developed by Inco to treat ores from the Goro nickel deposits at the southeastern tip of the island. The proposed pilot plant will be able to process 12 t of ore per day

(Inco Limited, 1997). The pilot plant will be used to validate proprietary acid pressure leaching and solvent extraction technologies. Construction of the plant and completion of related engineering work on the leaching process is expected to cost \$50 million.

Inco has an 85% share in the Goro Nickel Project. The remaining 15% is held by BRGM, an entity of the French Government. In March 1997, during the first stage of the project, a detailed feasibility study was completed and the results presented to the New Caledonian territorial government and public.

The main Goro laterite deposit reportedly has 165 million t (on a dry weight basis) of drill-indicated resources averaging 1.6% nickel and 0.16% cobalt. The initial mining zone, which has 47 million t of proven reserves, should provide 20 years of feed for a commercial-size extraction plant. Because the proposed Goro Mine will be an open-pit operation and generate byproduct cobalt, it has the potential of being one of the more economical nickel producers in the world.

Reference Cited

Inco Limited, 1997, Inco to move forward with pilot plant and engineering for Goro Nickel Project: Toronto, Ontario, Inco Limited press release no. 16/97, September 17, 2 p.

TABLE 1
CONSUMPTION OF NICKEL (EXCLUSIVE OF SCRAP), BY FORM AND USE 1/

(Metric tons, nickel content)

Period	Cathodes, pellets, briquets, and powder	Ferronickel	Oxide-sinter, salts, and other forms	Total	Total year to date
1996:					
July	6,520	1,160	131	7,810	59,300
August	6,340	1,450	140	7,930	67,200
September	6,050	1,540	178	7,770	75,000
October	6,740	1,750	320	8,810	83,800
November	5,700	1,340	365	7,400	91,200
December	5,690	1,650	181	7,520	98,700
January-December	78,100	17,600	2,980	98,700	XX
1997:					
January	6,900	2,000	101	9,000	9,000
February	5,950	1,510	129	7,590	16,600
March	5,730	1,580	253	7,570	24,200
April	6,480	1,490	570	8,540	32,700
May	6,600	1,300	410	8,300	41,000
June	6,630	1,280	434	8,350	49,300
July:					
Steel:					
Stainless and heat resisting	2,310	1,460	W	3,770	26,100
Alloy (excludes stainless)	828	W	W	1,010	4,360
Superalloys	907	--	W	907	5,460
Copper-nickel alloys	75	W	--	75	75
Electrical, magnetic, and expansion alloys	W	--	--	W	W
Other nickel & nickel alloys	W	--	W	W	W
Cast iron	W	--	W	W	W
Electroplating (sales to platers)	1,030	--	W	1,030	8,850
Chemical and chemical uses	W	--	W	W	W
Other uses	1,450	177	299	1,920	13,100
Total reported	6,600	2/ 1,640	299	8,710	57,900
Total all companies (calc) 3/	XX	XX	XX	12,400	84,300
1997: January-July	44,900	10,800	2,200	57,900	XX
1996: January-July	47,600	9,860	1,790	59,300	XX

W Withheld to avoid disclosing company proprietary data; included in "Other uses" category. XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Of consumption, 5,500 metric tons were consumed as cathodes and pellets, the remainder as briquets and powder.

3/ Figures represent calculated apparent consumption; based on the revised proportion of reported primary consumption (68.69%) to apparent primary consumption for 1994.

TABLE 2
ENDING STOCKS OF NICKEL (EXCLUSIVE OF SCRAP) HELD BY CONSUMERS,
BY FORM AND USE 1/ 2/

(Metric tons, nickel content)

Period	Cathodes, pellets, briquets, and powder	Ferronickel	Oxide-sinter, salts, and other forms	Total
1996:				
July	3,450	517	70	4,040
August	3,340	429	77	3,850
September	2,910	277	82	3,270
October	2,770	472	82	3,320
November	6,170	625	64	6,860
December	4,990	1,540	78	6,610
1997:				
January	4,370	659	55	5,080
February	3,970	231	180	4,390
March	4,020	240	603	4,870
April	3,780	366	633	4,770
May	3,240	344	581	4,170
June	3,880	389	302	4,570
July:				
Steel (stainless, heat resisting and alloy)	2,350	382	(3/)	2,730
Nonferrous alloys 4/	2,120	(3/)	(3/)	2,120
Foundry (cast irons)	(5/)	--	--	(5/)
Chemical (catalysts, ceramics, plating salts, etc.) and unspecified uses	177	--	137	314
Total	4,650	382	137	5,170

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Stocks held by companies that consume nickel in more than one end use category are credited to the major category. Stocks are subject to revisions owing to inventory adjustment.

3/ Included in "Chemicals and unspecified uses" category of "Oxide-sinter, salts, and other forms".

4/ Includes superalloys, nickel-copper and copper-nickel alloys, permanent magnet alloys, and other nickel alloys.

5/ Included in "Chemicals and unspecified uses" category.

TABLE 3
CONSUMPTION AND ENDING STOCKS OF PURCHASED SECONDARY NICKEL, BY USE 1/

(Metric tons, nickel content)

Period	Consumption			Stocks		
	Ferrous scrap 2/	Nonferrous scrap 3/	Total scrap	Ferrous scrap 2/	Nonferrous scrap 3/	Total scrap
1996:						
July	3,670	690	4,360	3,320	97	3,420
August	2,860	1,080	3,940	3,360	98	3,460
September	3,490	871	4,370	3,100	110	3,210
October	3,600	773	4,370	3,340	107	3,450
November	3,250	785	4,030	3,630	89	3,720
December	3,320	656	3,970	3,510	88	3,600
January-December	43,400	9,980	53,400	XX	XX	XX
1997:						
January	4,800	830	5,630	3,160	116	3,280
February	3,880	791	4,670	3,290	114	3,400
March	4,250	995	5,250	4,090	104	4,190
April	5,260	774	6,040	3,820	113	3,940
May	4,750	826	5,570	3,790	114	3,900
June	4,770	740	5,510	3,900	112	4,020
July	5,200	829	6,030	3,380	115	3,490
1997: January-July	32,900	5,790	38,700	XX	XX	XX
1996: January-July	43,400	10,200	53,600	XX	XX	XX

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Nickel content is calculated from an average nickel content and the reported gross weight of scrap.

3/ Combined consumption and stocks of aluminum-base, copper-base, and nickel-base scrap.

TABLE 4
U.S. IMPORTS FOR CONSUMPTION OF NICKEL, BY COUNTRY 1/

(Metric tons, nickel content 2/)

Period and country of origin	Cathodes, pellets, and briquets	Powder and flakes	Ferro- nickel	Metal- lurgical- grade oxide	Waste and scrap	Stainless steel scrap	Chemicals	Total 3/	Total year to date 4/	Wrought nickel
1996:										
June	7,750	927	1,430	9	343	289	254	11,000	80,400	43
July	7,230	684	1,470	18	238	274	216	10,100	90,500	42
August	9,250	835	1,120	14	235	319	265	12,000	103,000	44
September	9,390	629	884	33	416	322	234	11,900	114,000	52
October	7,850	779	1,050	60	581	373	311	11,000	125,000	67
November	9,820	670	1,520	99	328	308	290	13,000	138,000	38
December	9,180	815	969	21	351	275	251	11,900	150,000	61
January-December	113,000	9,690	16,000	463	4,270	3,790	3,270	150,000	XX	636
1997:										
January	7,640	954	1,180	111	364	263	265	10,800	10,800	57
February	9,310	945	1,180	395	696	392	242	13,200	23,900	53
March	14,500	1,130	1,070	277	544	342	198	18,100	42,000	73
April	7,920	948	1,050	347	572	433	294	11,600	53,600	78
May	13,900	839	1,420	217	370	469	297	17,500	71,100	99
June:										
Australia	487	--	--	--	--	--	--	487	5,770	--
Canada	731	469	--	36	161	290	22	1,710	32,200	1
Colombia	--	--	113	--	--	--	--	113	719	--
Dominican Republic	--	--	531	--	--	--	--	531	4,200	--
Finland	291	39	--	--	--	--	37	367	2,680	--
France	101	--	--	--	75	--	19	195	1,340	(5/)
Germany	--	1	--	--	34	--	24	59	435	30
Japan	--	9	--	--	14	9	39	71	480	8
New Caledonia	--	--	536	--	--	--	--	536	2,040	--
Norway	--	--	--	--	--	--	--	--	12,000	--
Russia	3,420	36	--	--	--	--	4	3,460	13,100	--
South Africa	--	--	--	--	--	--	--	--	201	--
United Kingdom	53	57	--	--	163	--	56	329	1,100	(5/)
Zimbabwe	114	--	--	--	--	--	--	114	594	--
Other	40	14	57	13	35	212	55	426	2,690	--
Total	5,240	625	1,240	49	482	511	256	8,400	79,500	39
1997: January-June	58,500	5,440	7,130	1,400	3,030	2,410	1,550	79,500	XX	401
1996: January-June	60,100	5,280	8,980	219	2,130	1,920	1,700	80,400	XX	333

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ The nickel contents are assumed to be as follows: metallurgical-grade oxide (77%), waste and scrap (50%), and stainless steel scrap (7.5%). The chemical category includes chlorides (25%), sulfates (22%), and other salts (22%), supported catalysts (22%), and oxide, sesquioxide and hydroxide (65%).

3/ Excludes wrought nickel.

4/ May include revisions for prior months.

5/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 5
U.S. EXPORTS OF NICKEL, BY COUNTRY 1/

(Metric tons, nickel content 2/)

Period and country of destination	Cathodes, pellets, and briquets	Powder and flakes	Ferro- nickel	Metal- lurgical- grade oxide	Waste and scrap	Stainless steel scrap	Chemicals	Total 3/	Total year to date 4/	Wrought nickel
1996:										
June	79	142	73	616	800	1,530	295	3,530	20,700	19
July	7	50	650	480	778	2,650	364	4,980	25,700	30
August	44	97	299	348	703	2,200	424	4,120	29,800	64
September	6	80	179	359	1,210	2,230	292	4,360	34,200	27
October	20	79	359	420	1,280	2,270	185	4,620	38,800	63
November	19	88	324	517	918	1,610	197	3,670	42,500	59
December	21	75	433	393	960	1,850	551	4,280	46,800	21
January-December	586	1,060	3,330	4,210	10,900	22,800	3,940	46,800	XX	439
1997:										
January	20	72	442	513	862	1,740	455	4,100	4,100	56
February	39	114	416	134	1,000	1,690	515	3,920	8,020	89
March	26	93	616	172	1,210	1,280	488	3,880	11,900	61
April	33	84	725	148	1,480	2,740	684	5,890	17,800	158
May	29	102	913	124	1,290	1,610	439	4,510	22,300	58
June:										
Australia	--	--	--	--	--	--	--	--	66	(5/)
Belgium	--	(5/)	--	--	--	23	1	24	205	--
Canada	2	53	--	53	485	275	13	881	6,740	(5/)
Germany	--	2	--	--	22	1	8	33	418	1
India	--	(5/)	295	--	--	8	--	303	1,170	1
Italy	--	(5/)	--	--	--	--	7	7	94	--
Japan	1	14	60	--	221	58	28	382	2,640	4
Korea, Republic of	--	15	--	1	--	687	3	706	4,120	12
Mexico	4	1	5	--	--	1,260	37	1,310	1,750	26
Netherlands	--	(5/)	--	--	(5/)	101	1	102	241	--
Spain	--	--	--	--	--	584	--	584	2,400	--
Sweden	--	--	--	--	174	(5/)	(5/)	174	1,430	--
Taiwan	--	(5/)	420	--	--	372	112	904	3,640	--
United Kingdom	--	3	--	--	24	1	4	32	343	1
Other	45	9	120	118	37	171	44	544	3,030	11
Total	52	97	900	172	963	3,540	258	5,990	28,300	56
1997: January-June	199	563	4,010	1,260	6,810	12,600	2,840	28,300	XX	478
1996: January-June	468	590	1,080	1,690	5,020	9,940	1,930	20,700	XX	175

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ The nickel contents are assumed to be as follows: metallurgical-grade oxide (77%), waste and scrap (50%), and stainless steel scrap (7.5%). The chemical category includes chlorides (25%), sulfates (22%), and other salts (22%), supported catalysts (22%), and oxide, sesquioxide and hydroxide (65%).

3/ Excludes wrought nickel.

4/ May include revisions for prior months.

5/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 6
U.S. IMPORTS FOR CONSUMPTION OF NICKEL ALLOYS, BY COUNTRY 1/

(Metric tons, gross weight)

Period and country of origin	Unwrought alloyed ingot	Bars, rods, and profiles	Wire	Plates and sheets	Foil	Tubes and pipes	Other alloyed articles	Total	Total year to date 2/
1996:									
June	221	242	116	157	(3/)	71	54	861	5,220
July	188	117	195	90	(3/)	44	107	743	5,960
August	91	219	97	187	(3/)	49	615	1,260	7,220
September	117	70	144	133	(3/)	50	59	573	7,800
October	249	151	120	90	(3/)	72	60	741	8,540
November	349	161	168	81	(3/)	66	29	854	9,390
December	151	178	256	145	(3/)	48	64	843	10,200
January-December	2,780	2,110	1,810	1,520	2	832	1,190	10,200	XX
1997:									
January	208	132	196	98	--	100	108	841	841
February	181	202	190	149	--	96	107	926	1,770
March	265	184	266	90	(3/)	117	52	974	2,740
April	234	186	283	139	--	298	61	1,200	3,940
May	457	148	290	190	1	104	56	1,250	5,190
June:									
Australia	126	--	--	--	--	--	--	126	915
Belgium	12	(3/)	--	--	3	--	--	15	96
Canada	--	--	7	--	--	5	6	18	188
France	--	7	65	24	--	67	1	164	572
Germany	2	80	73	116	(3/)	27	1	299	1,520
Italy	--	62	--	--	--	8	--	70	405
Japan	(3/)	--	5	4	--	18	1	28	430
Mexico	--	--	--	(3/)	--	--	1	1	4
Netherlands	--	--	(3/)	--	--	--	10	10	60
South Africa	22	--	--	--	--	--	--	22	200
Sweden	--	--	190	4	--	6	1	201	913
United Kingdom	70	34	1	1	(3/)	3	9	118	654
Other	199	7	5	1	--	--	39	251	556
Total	431	190	346	150	3	134	69	1,320	6,510
1997: January-June	1,780	1,040	1,570	818	3	848	452	6,510	XX
1996: January-June	1,630	1,210	828	791	1	503	253	5,220	XX

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ May include revisions for prior months.

3/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 7
U.S. EXPORTS OF NICKEL ALLOYS, BY COUNTRY 1/

(Metric tons, gross weight)

Period and country of destination	Unwrought alloyed ingot	Bars, rods, and profiles	Wire	Plates and sheets	Foil	Tubes and pipes	Other alloyed articles	Total 2/	Total year to date 2/
1996:									
June	531	270	155	676	60	81	168	1,940	12,100
July	335	349	148	628	8	84	451	2,000	14,100
August	540	184	176	619	5	96	183	1,800	15,900
September	274	177	166	622	9	78	176	1,500	17,400
October	602	240	147	600	12	49	394	2,040	19,400
November	485	340	113	725	5	74	276	2,020	21,400
December	478	191	119	971	9	146	129	2,050	23,500
January-December	5,710	3,210	1,560	8,000	200	1,270	3,520	23,500	XX
1997:									
January	541	320	115	838	10	91	120	2,030	2,030
February	641	222	137	554	20	136	180	1,890	3,930
March	425	334	152	845	23	99	597	2,480	6,400
April	344	225	224	649	14	90	374	1,920	8,320
May	262	290	212	810	15	81	146	1,820	10,100
June:									
Australia	--	--	3	57	--	1	--	61	388
Belgium	--	1	--	4	--	32	--	37	102
Canada	92	27	18	48	3	28	32	248	1,880
France	94	13	3	2	--	(3/)	17	129	1,240
Germany	12	24	9	40	--	2	4	91	441
India	--	2	(3/)	--	--	1	(3/)	4	8
Ireland	(3/)	(3/)	51	17	--	--	1	69	218
Italy	1	2	1	92	--	7	7	110	698
Japan	55	4	5	197	--	(3/)	24	285	1,290
Korea, Republic of	(3/)	1	7	53	--	1	19	81	636
Mexico	--	4	45	4	--	40	4	97	360
Netherlands	11	30	1	4	--	(3/)	54	100	291
Singapore	--	9	3	1	--	(3/)	(3/)	13	108
Spain	2	(3/)	(3/)	(3/)	--	(3/)	--	2	67
Sweden	--	10	(3/)	7	7	--	--	24	120
Switzerland	(3/)	(3/)	2	2	--	1	9	14	92
Taiwan	9	1	(3/)	(3/)	(3/)	4	45	59	259
United Kingdom	56	143	43	238	1	(3/)	2	483	2,540
Other	25	44	4	15	--	14	468	570	1,900
Total	357	319	195	781	11	131	686	2,480	12,600
1997: January-June	2,570	1,710	1,040	4,480	93	628	2,110	12,600	XX
1996: January-June	3,000	1,730	692	3,840	151	742	1,910	12,100	XX

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ May include revisions for prior months.

3/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 8
NICKEL CONSUMPTION IN CAST AND WROUGHT PRODUCTS

	Percent	
	Wrought	Cast
July 1997:		
Stainless and heat resisting steels	97	3
Alloy steels	99	1
Superalloys	77	23
Copper-nickel alloys	92	8
Other nickel-base alloys	100	(1/)
1/ Less than 1/2 unit.		

TABLE 9
NICKEL PRICES

Date	Cathode NY Dealer \$/lb.	LME Cash \$/t	LME Cash \$/lb.	18/8 Stainless steel scrap Pittsburgh \$/long ton(gw)
1997:				
Average for the month of:				
June	3.319	7,062.476	3.203	845
July	3.175	6,835.500	3.101	809
August	3.144	6,761.300	3.067	795
For week ending:				
June 6	3.27-3.37	7,021.200	3.185	840-850
June 13	3.39-3.42	7,171.400	3.253	840-850
June 20	3.33-3.39	7,093.300	3.217	840-850
June 27	3.29-3.35	7,019.000	3.184	840-850
July 4	3.22-3.29	6,808.700	3.088	800-810
July 11	3.19-3.23	6,760.800	3.067	800-820
July 18	3.15-3.22	6,716.500	3.047	800-820
July 25	3.16-3.18	6,698.000	3.038	800-820
August 1	3.17-3.49	7,285.800	3.305	800-820
August 8	3.31-3.43	7,115.500	3.228	790-800
August 15	3.11-3.32	6,654.900	3.019	790-800
August 22	3.09-3.13	6,591.300	2.990	790-800
August 29	3.06-3.10	6518.125	2.957	790-800

Sources: Platt's Metals Week and American Metal Market.